Syllabus

Phil 106: Logic
Spring 2019

Instructor:

Waisan Ng
wn6@rice.edu
Office Hours: W 4-5pm, HUM 212 (Or by appointment)

Course Time and Location:

MWF: 3:00pm–3:50pm
Location: HUM 118
Optional Tutorial Session: F 4:30-5:30pm
Location: HUM 119

Course Goals:
Students are expected to:

1. Be fluent in 2 formal languages – SL and QL, which includes a mastery of the skills to construct sentences in these languages, to analyze their logical relationships, and to operate formal derivation systems.
2. Develop an ability to read proofs, to construct clear and precise arguments using logical definitions, to understand how we accumulate logical knowledge.
3. Develop a sensitivity to some key features of natural languages as compared to formal language, so as to better evaluate arguments in natural language.

Course Outcome:
Students will demonstrate the abilities to:

1. Construct meaningful sentences in formal languages
2. Operate formal derivation systems
3. Provide proofs or counterexamples within formal languages
4. Evaluate meta-theoretical statements
5. Translate some English sentences into these languages
6. Evaluate the logical validity of some natural language arguments.

Grading:

- There are **three** take-home **examinations** during the semester. Each will count for 20% of your grade, so 60% in total.
- There are **10 quizzes**, each will account for 4% of your grade, so together they are worth 40%.
- There are **10 weekly graded homework assignments**. This is just an opportunity to improve your course performance. If your total homework score, in percentage terms, is higher than the lowest of the three exam scores, you can replace your total homework score with that exam. If not, your homework scores will not count towards your grade.

Honor Code:

- For quizzes and graded homework, you may consult notes and the text, but other forms of assistance are prohibited. Quizzes and Homework assignments are for individual effort only, unless the homework worksheet explicitly says otherwise.
- ***No assistance of any kind is permitted on examinations***—no notes, textbook, friends, internet, *etc*. If you have questions during an examination, please e-mail me.
- Each completed homework, quiz and exam must have a signed honor pledge.

Required Texts and Materials:

We will use Prof. Richard Grandy, Michael Barkasi, and Joshua Reagan's *Mathematical Logic*. Prof. Richard Grandy is a Professor Emeritus at Rice, Michael Barkasi, and Joshua Reagan are his former graduate students. They wrote this textbook and made it available to the public for free. The pdf files for the course textbook will be in the Resources folder.

All pedagogical materials for the course (exercises, lecture powerpoint) will be available on Canvas. Exams, Quizzes, and Homework will be distributed in their physical form.

Lateness Policy:

Graded homework, quizzes, and exams are due by the end of class. Unless with a medical proof of illness or injury, late homework, quizzes, and exams will be discounted 10% hourly (i.e. 10 points will be taken away hourly for an assignment of 100 points). If you are going to miss class on the day that an assignment is due because of a university-approved event, please let me know via email at least a week in advance.

Absence Policy:

I will not take attendance formally, but you will need to be in class to pick up and turn in homework assignments and exams.

Disability Policy:

Any student with a documented disability needing academic adjustments or accommodations must speak with me during the first two weeks of class. All discussions will remain confidential. Students with disabilities should also contact Disability Support Services, Rm. 111 Allen Center, 713-348-5841, www.dss.rice.edu.

Electronic Devices:

Use of cell phones in the classroom is forbidden.

Note:

The specific assignments, due dates, etc. may be changed if necessary due to circumstances beyond the control of the instructor. Should this occur I'll post an updated syllabus and send out a notification as soon as possible. You are responsible for reading email and being aware of any announced change.

Week	Lesson	Date	Topic	Assignment
1	1	Jan 7	Introduction and Overview (Ch. 1, pp. 1-10)	-
	2	Jan 9	Informal Fallacy, Formal/Informal Distinction	-
	3	Jan 11	Ambiguity and the Need for Translation	-
2	4	Jan 14	SL Syntax (Ch. 2, pp. 15-21)	Quiz 1 Due
	5	Jan 16	SL Models/Truth (Ch. 2, pp. 21-26)	-
	6	Jan 18	Truth Tables/TFT/TFF/TFC (Ch. 2, pp. 26-31)	HW1 Due
3		Jan 21	MARTIN LUTHER KING, JR. DAY (HOLIDAY - NO CLASS)	-
	7	Jan 23	Entailments (Ch. 2, pp. 31-35)	Quiz 2 Due
	8	Jan 25	Other Logical Relations (Ch 2, pp. 36-39)	HW2 Due
4	9	Jan 28	Basic SL Translations	Quiz 3 Due
	10	Jan 30	Natural Deduction for SL (Ch 6, ND Basic Rules)	-
	11	Feb 1	Natural Deduction for SL Continued	HW 3 Due
5	12	Feb 4	Natural Deduction for SL+ Shortcut Rules	Quiz 4 Due
	13	Feb 6	**Exam 1 Review**	-
		Feb 8	SPRING RECESS (NO CLASS)	-
6	14	Feb 11	Concluding SL - SL Translation Limitation	**Exam 1 Due**
	15	Feb 13	Introduction to Mathematical Induction (1)	-
	16	Feb 15	Introduction to Mathematical Induction (2)	HW 4 Due
7	17	Feb 18	QL1 Syntax/Models	Quiz 5 Due
	18	Feb 20	QL1 Model	-
	19	Feb 22	QL1 Truth in a model	HW 5 Due
8	20	Feb 25	QL1 Logical Truth – ESTHER DROP DEADLINE	Quiz 6 Due
	21	Feb 27	QL1 Logical Truth/Entailment/Other Relations	-
	22	Mar 1	QL1 Review - Translation	HW 6 Due
9	23	Mar 4	QL2 Syntax/Models/Truth	Quiz 7 Due
	24	Mar 6	**Exam 2 Review**	-
	25	Mar 8	QL2 Translations – Advanced	**Exam 2 Due**
10		Mar 11	SPRING BREAK (NO CLASS)	-
		Mar 13	SPRING BREAK (NO CLASS)	-
		Mar 15	SPRING BREAK (NO CLASS)	-
11	26	Mar 18	QL2 Truth in a Model	-
	27	Mar 20	QL2 The Dragnet Theorem and The Freechoice Theorem	-
	28	Mar 22	QL2 Logical Truth/Entailment/Other Relations	HW 7 Due
12	29	Mar 25	ND for SL Revision - Deriving Shortcut Rules	Quiz 8 Due
	30	Mar 27	ND for SL Revision - Deriving Shortcut Rules	-
	31	Mar 29	ND for QL Introduction	HW 8 Due
13	32	Apr 1	ND for QL + Short cut rules	Quiz 9 Due
	33	Apr 3	ND for QL	-
	34	Apr 5	ND for QL	HW 9 Due
14	35	Apr 8	ND for QL	Quiz 10 Due
	36	Apr 10	ND for QL	-
	37	Apr 12	**Exam 3 Review**	HW 10 Due
15	38	Apr 15	Relationship Between Derivations & Proofs	**Exam 3 Due**
	39	Apr 17	QL Natural Language Translation Restriction	-
	40	Apr 19	Why Translation and Why Logic?	-

I understand, acknowledge, and accept the course content, evaluation criteria and administrative policies as specified in PHIL-106-2019 Spring Syllabus (P.1-P.3). I also agree that it is my responsibility to read emails from the instructor and be aware of any announced change.

Name: _____ Signature:_____ Date:_____